

CLAIMS

1. A temperature control element including a plate having a heater or heat absorber provided on the non-heating side thereof or buried therein, wherein:

the total area of contact between a pedestal provided to support the plate thereon in contact with mainly the non-heating side and the plate including the heater or heat absorber is over 30% of the area of the non-heating side of the plate; and

the sum of surface roughness Ra2 of the plate and heater or heat absorber at a portion where it is in contact with the pedestal and that at the side of the plate at the pedestal side is over 0.05 μm .

2. The element according to claim 1, wherein the pedestal supports the plate in contact with the edge and/or end face at the non-heating side of the non-heating side of the plate.

3. The element according to claim 1 or 2, wherein the plate is formed from ceramics.

4. A temperature controller including a temperature control element and a pedestal to support the temperature control element thereon inside a casing, wherein:

the temperature control element includes a plate having a heater or heat absorber provided on the non-heating side thereof or buried therein;
the total area of contact between a pedestal provided to support the plate thereon in contact with mainly the non-heating side and the plate including the heater or heat absorber is over 30% of the area of the non-heating side of the plate; and

the sum of surface roughness Ra1 of the pedestal at a portion where it is in contact with the plate and heater or heat absorber and surface roughness Ra2 of the plate and heater or heat absorber at a portion where it is in contact with the pedestal and is over 0.05 μm .

5. The controller according to claim 4, wherein the pedestal supports the plate in contact with the edge and/or end face at the non-heating side of the non-heating side of the plate.

6. The controller according to claim 4 or 5, wherein the plate is formed from ceramics.

7. A waveguide type optical module in which a temperature control element is supported in air on a pedestal inside a casing and an optical waveguide is mounted on the temperature control element, wherein:

the temperature control element includes a plate having a heater or heat absorber provided on the non-heating side thereof or buried therein;

the total area of contact between a pedestal provided to support the plate thereon in contact with mainly the non-heating side and the plate including the heater or heat absorber is over 30% of the area of the non-heating side of the plate; and

the sum of surface roughness Ra1 of the pedestal at a portion where it is in contact with the plate and heater or heat absorber and surface roughness Ra2 of the plate and heater or heat absorber at a portion where it is in contact with the pedestal and that at the side of the plate at the pedestal side is over 0.05 μm .

8. A temperature control element including a plate having a heater or heat absorber provided on the non-heating side thereof or buried therein, wherein:

a pedestal provided to support the plate thereon in contact with mainly the non-heating side and plate are superposed one on the other with a thermal insulation laid between them; and

the sum of area of contact between the pedestal, and the plate including the heater or heat absorber and superposed on the pedestal with the thermal insulation laid between them, is over 30% of the area of the non-heating side of the plate.

9. The element according to claim 8, wherein the pedestal supports the plate in contact with the edge and/or end face at the non-heating side of the latter.

10. The element according to claim 8 or 9, wherein the plate is formed from ceramics.

11. A temperature controller including a temperature control element and a pedestal provided to support the plate thereon inside a casing, wherein:

the temperature control element includes a plate having a heater or heat absorber provided on the non-heating side thereof or buried therein;

the pedestal mainly in contact with the non-heating side of the plate and plate are superposed one on the other with a thermal insulation laid between them; and

the sum of area of contact between the pedestal, and the plate including the heater or heat absorber and superposed on the pedestal with the thermal insulation laid between them, is over 30% of the area of the non-heating side of the plate.

12. The controller according to claim 11, wherein the pedestal supports the plate in contact with the edge and/or end face at the non-heating side of the

latter.

13. The controller according to claim 11 or 12, wherein the plate is formed from ceramics.

14. A waveguide type optical module in which a temperature control element is supported in on a pedestal inside a casing and an optical waveguide is mounted on the temperature control element, wherein:

the temperature control element includes a plate having a heater or heat absorber provided on the non-heating side thereof or buried therein;

the pedestal mainly in contact with the non-heating side of the plate and plate are superposed one on the other with a thermal insulation laid between them; and

the sum of area of contact between the pedestal, and the plate including the heater or heat absorber and superposed on the pedestal with the thermal insulation laid between them, is over 30% of the area of the non-heating side of the plate.